

6. On the *Sterninæ*, or Terns, with Descriptions of three new Species. By HOWARD SAUNDERS, F.L.S., F.Z.S.

[Received June 6, 1876.]

(Plate LXI.)

Having recently had opportunities of examining some interesting types of various real and supposed species of the subfamily *Sterninæ*, I propose to anticipate to a certain extent the monograph of the *Laridæ* upon which I have been for some time engaged, and to give the result of my observations in the following review of the species at present known to me, with general remarks upon their geographical distribution.

The principal writers who have hitherto treated of the *Sterninæ* are:—Prof. Schlegel, in the *Mus. d'Hist. Nat. Pays-Bas, Sternæ*, 1863; Prof. Blasius, in *Journ. für Orn.* 1866, p. 73; Dr. Elliott Coues, in *Proc. Phil. Acad.* 1862, and monographically, as regards the North-American species, in his 'Birds of the North West' 1874; and Messrs. Selater and Salvin (*Neotropical Laridæ*, P. Z. S. 1871). And from the works of these able authors I have derived much assistance, especially from the last, owing to the care with which the synonymy and the geographical distribution have been worked out. Indeed as regards America I might well have been content to wait until the completion of my monograph; but as there are a good many species in other parts of the globe which have not been so recently noticed, there may be room for a few remarks.

It is almost needless to say that, owing to the general similarity in colour, the *Sterninæ* are a troublesome subfamily to handle, the question of what constitutes specific distinctness being here more than usually perplexing. The individual differences in size of bill, length of wing, &c. are often considerable; added to which there are subtle gradations in the various shades of plumage, which render it impossible to accord specific rank to forms which, when judged by their extremes alone, seem totally distinct. Under these circumstances it is not surprising that a species should sometimes be based upon what may appear at the first glance to be a very slight distinction; for the alternative is to unite under one head some forms which are clearly different; and considering the general tendency that there is towards blending, the systematist must be glad to avail himself of the smallest *permanent* characteristic. The young are often very much alike: and indeed in several cases they are as yet undistinguishable with the limited material at present available; but larger series of authentic specimens will doubtless clear up several points. The coloration of the soft parts presents considerable difficulties, owing to the changes which take place at different ages and seasons, it frequently happening that the bill and legs in quite young birds increase in intensity of colour up to a certain time in autumn, and then become dark, the brighter colour not being resumed until the following spring: this is notably the case with the Common and the Arctic Terns, in which the bills become dark very suddenly between the

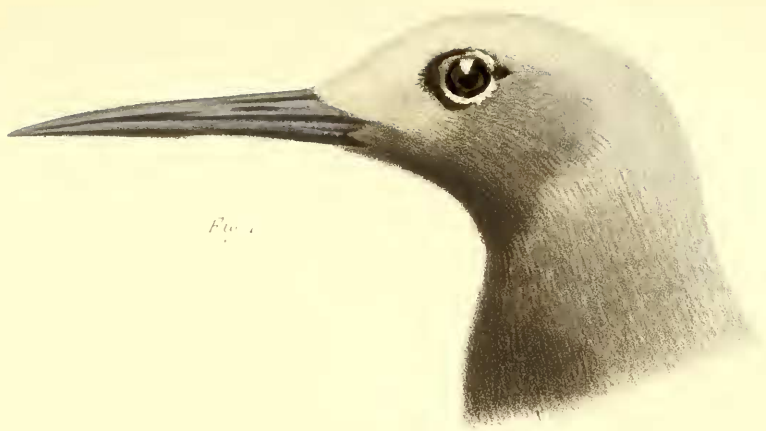


Fig. 1

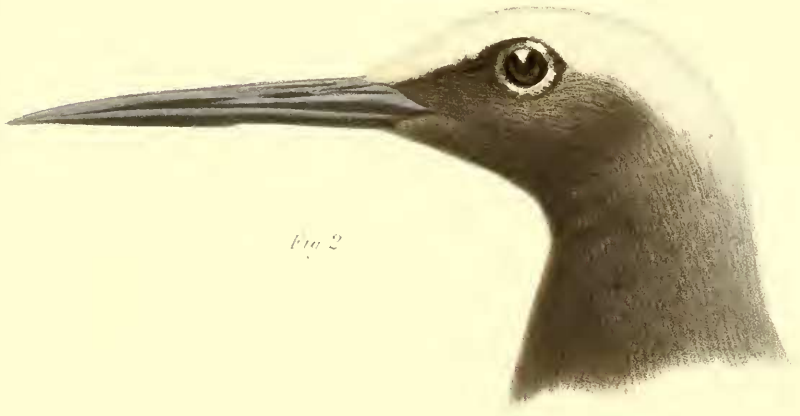


Fig. 2



Fig. 3

Wm. J. G. Smith lith

M & N Hanna del imp

Fig. 1. ANOUS TEMMINCKII STRIS  
" 2. MELANOGENYS  
" 3. LEUCOCAPILLUS



first and second weeks in October. At this season, too, the grey tint on the rump and tail-coverts which is also assumed by some species is apt to lead to confusion. Of the difficulties presented by the wearing-away of the grey frosty surface on the primaries, giving an abnormal appearance to their pattern, it is not necessary to say anything beyond drawing attention to their existence.

After careful examination of the representatives of all the genera into which this subfamily has been divided, I am unable to discover any satisfactory reasons for the adoption of more than five, viz. *Sterna*, *Hydrochelidon*, *Nania*, *Gygis*, and *Anous*. It is true that in many forms there appears to be considerable departure from what we have been accustomed to consider typical *Sterna*; and this was especially evident to those systematists who treated principally of European or North-American species; but when the various species of the whole world are examined, so many connecting links and gradations will be found to exist, as to reduce the structural distinctions to a minimum, and to preclude the possibility of adopting with any degree of consistency several genera which at first glance seemed valid enough. For example, the Sooty Terns (*S. fuliginosa*, *S. anæsthesia*, and *S. lunata*) have had no less than three genera erected for one of their number by Wagler alone, viz. *Onychoprion*, *Haliplana*, and *Planetis*, the definitions of which will hardly bear analysis; but even if any one of them were based upon genuine structural characters (which is not the case), there exists a far more important difference between the foot in *S. fuliginosa* and in that of *S. anæsthesia*, than there is between *S. fuliginosa* and any typical *Sterna*, such as *S. fluviatilis*. It would strike any one as absurd to separate these two Sooty Terns generically, seeing that their resemblance is so close that for some time even their specific characteristics were by no means well known; yet, unless this is done, it is fully as inconsistent to separate them from true *Sternæ*. It is, however, unnecessary to say more upon this particular subject, as it will be noticed when treating of the species in question. The result of the mania which at one time prevailed for the manufacture of genera may be seen in the fact that whereas the members of the subfamily Sterninæ are about 50 in number, the genera erected for their reception are upwards of 30. It is true that many of these are merely vain repetitions of previously existing genera, the names of which did not happen to suit the fancy of the respective systematists, and that by discarding these synonyms the burden might be endured if the discrepancies of opinion as to the genera in which the various species should be located were not hopelessly irreconcilable, a single species being sometimes assigned to 7 or 8 different genera. Dismissing all but those which are based upon structural characters, independent investigations have led me to adopt substantially the genera accepted by the late G. R. Gray (Gen. Birds iii. p. 658), with the exception of *Phætusa*, which I put back under *Sterna*; whilst *Nenia*, which he puts with *Anous*, I consider valid; several species also which he assigned to *Hydrochelidon* are now restored to *Sterna*. Of the discarded genera even the best seem to be based upon the size and shape

of the bill—a very variable character in Terns, and one which, when taken alone, does not seem to be of so much value in this family as in many others.

All things considered, the following arrangement of the various species seems to me to be the most natural; but, as is well known to all naturalists who have undertaken a similar task, it is impossible to attain to absolute consistency in locating the various members of a family in an ascending or descending scale; for the aberrant forms which frequently present themselves would destroy the best scheme that ever could be invented.

#### Genus HYDROCHELIDON, Boie.

This genus, originally instituted by Boie (Isis 1822, p. 563) for *H. nigra* and *H. leucoptera*, *H. hybrida* being left by him with *Sterna*, was, indeed, principally based upon coloration; but it has since been well defined and generally accepted as including the Marsh-Terns—of which the most characteristic distinctions are the short rounded tail, and the long slender toes connected by deeply incised webs. There is a general resemblance between the species which compose this very natural genus, the members of which agree in their habits, being gregarious at the breeding-season, and making their nests in the midst of marshy places. For convenience of treatment I commence with

##### HYDROCHELIDON HYBRIDA (Pall.).

*Sterna hybrida*, Pall. Zoogr. Rosso-As. ii. p. 338 (1811); Schlegel, Mus. P.-B. *Sterna*, p. 33 (1863).

*Sterna leucopareia*, Natterer, in Temm. Man. d'Orn. p. 746 (1820).

*Sterna javanica*, Horsfield, Trans. Linn. S. xiii. p. 198 (1820) (type examined in E. I. Mus., *H. S.*); Gray & Hardw. Ill. Ind. Zool. i. pl. 70. fig. 1 (1832).

*Sterna grisea*, Horsfield, Trans. L. S. xiii. p. 199 (1820) (type examined in E. I. Mus., *H. S.*).

*Viralva indica* et *V. leucopareia*, Steph. in Shaw's Gen. Zool. xiii. p. 171 & 169 (1825).

*Sterna delamottei*, Vieillot, Faun. Fr. p. 402 (1828).

*Pelodes leucopareia*, Kaup, Nat. Svst. p. 107 (1829).

*Sterna similis*, Gray & Hardw. Ill. Ind. Zool. i. pl. 70, fig. 2 (1832) (type examined in E. I. Mus., *H. S.*).

*Hydrochelidon sturii*, Gould, P. Z. S. 1842, p. 140; Gould, B. Australia, vii. pl. 31 (1848).

*Hydrochelidon hybrida*, G. R. Gray, Gen. B. iii. p. 660 (1846); Blas. J. f. Orn. 1866, p. 82; Degl. & Gerbe, Orn. Eur. ii. p. 468 (1867); Swinhoe, P. Z. S. 1871, p. 421 (Formosa).

*Hydrochelidon delalandii*, Bp. Compt. Rend. xlii. (1856), p. 773 (type examined, *H. S.*).

*Hydrochelidon indica*, Jerdon, B of India, iii. p. 837 (1864).

*Hydrochelidon leucopareia*, Gould, Handbook to B. Australia, ii. p. 406 (1865).

*Sterna innotata*, Beavan, Ibis, 1868, p. 404 (imm.).

*Pelodes delalandii*, Gray, Hand-list, iii. p. 122 (1871).

*Pelodes indica* et *P. fluviatilis*, Gray, Hand-list, iii. pp. 121, 122 (1871).

*Gelochelidon innotata*, Gray, Hand-list, iii. p. 119 (1871).

*Pelodes hybrida*, Gurney, Andersson's B. of Damaraland, p. 362 (1872); Gray, Hand-list, iii. p. 121 (1871).

"*Sterna leucoptera*" (in error), Buckley, Ibis, 1874, p. 391 (Transvaal).

After examining a very large series, I am unable to detect any constant difference between European, Indian, and Australian specimens. Examples in breeding-plumage are absolutely identical; and it is much if a trifling inferiority in size can be remarked in the Indian, and a slightly paler tint in the coloration of the upper parts of Australian examples. The general range of the species may therefore be described as from the extreme west of Europe to the coasts of China and the island of Formosa and throughout the Malayan region down to Australia, principally the Queensland portion. It occurs in South Africa abundantly in winter, and probably breeds there, as Andersson obtained it in full plumage in April. In the British Museum there is a mounted specimen marked as obtained at Barbadoes and presented by Sir Robert Schomburgk, who was for some time Governor of that West-Indian colony; but there does not appear to be any other record of its occurrence so far west, even as a straggler.

#### HYDROCHELIDON LEUCOPTERA, Meisn. & Schinz.

*Sterna fissipes* et *S. naevia*, Pallas, Zoogr. Rosso-As. ii. pp. 337-8 (1811), nec Linn.

*Sterna leucoptera*, Meisner & Schinz, Vög. Schweiz, p. 264 (1815); Temm. Man. d'Orn. p. 483 (1815).

*Hydrochelidon leucoptera*, Boie, Isis, 1822, p. 563; Buller, B. New Zealand, p. 287 (1873); Dresser, B. of Europe, pt. xlv. (Nov. 1875).

*Firvalva leucoptera*, Steph. in Shaw's Gen. Zool. xiii. p. 170 (1826).

*Hydrochelidon leucoptera*, Bp. Comp. List, p. 61 (1838).

*Hydrochelidon nigra*, G. R. Gray, Gen. Birds, iii. p. 660 (nec Linn.) (1849); Blas. J. f. Orn. 1866, p. 82; Swinhoe, Ibis, 1863, p. 97, P. Z. S. 1863, p. 28, P. Z. S. 1871, p. 421 (China); Gurney, Andersson's B. Damara-land, p. 363 (1872); G. R. Gray, Hand-list, iii. p. 121 (1871); Cones, B. N.W. America, p. 709 (1874).

*Hydrochelidon subleucoptera*, C. L. Brehm, Vogelfang, p. 350 (1855).

*Hydrochelidon javanica*, Swinhoe, Ibis, 1860, p. 68, 1861, p. 345 (nec Horsfield).

*Sterna nigra*, Schlegel. M. P.-B. *Sternae*, p. 31 (1863).

*Hydrochelidon niger*, Severtzoff, Turk. Jevotnie, p. 70 (1873), fide Dresser.

The description of this species was given by Meisner and Schinz,

and also by Temminck, under date of the same year; the former, however, give a coloured plate, and their claim to the earliest discrimination of its distinctness seems to be generally acknowledged. It is to be regretted that Mr. G. R. Gray and others should subsequently have identified it with *Sterna nigra* of Linnæus, for which there does not appear to have been any reasonable ground; for, as I trust to show when treating of the Black Tern, Linnæus's description can only apply to that species.

By its longer and more slender toes and claws, and deeply incised webs, this species may be distinguished from *H. nigra* at all ages; whilst its generally smaller dimensions serve to separate the young from that of *H. hybrida*. In the immature plumage also the upper tail-coverts are whiter than in *H. nigra*, in which the grey of the back continues over the rump and throughout the tail; but the above white band is somewhat dependent upon the make of the skin, and is not an unfailing guide with such specimens as the one Mr. J. H. Gurney had before him (which is now in my collection) when he identified it as *Sterna fissipes*. On raising the feathers on the rump, however, it will be seen that there is much more white at the base of those of *H. leucoptera* than in those of *H. nigra*; and in properly preserved skins the white band on the rump is clearly defined even in very young birds. The adults in summer can hardly be mistaken even on the wing, the *black* under wing-coverts being very conspicuous, (whereas in *H. nigra* they are *pale grey*); in winter and immature plumage the under wing-coverts are *white*.

A straggler to northern Europe, this Tern becomes abundant in the south and south-east, ranges throughout Siberia and China, and reaches to the Transvaal and Damaraland and to Abyssinia, whence I have several specimens, all in immature plumage; there is, however, little doubt that it breeds there. It has also been obtained in Australia and New Zealand, and is recorded by Dr. E. Coles as having been captured in Wisconsin, U. S., on 5th July 1873, in full breeding-plumage.

#### HYDROCHELIDON NIGRA (Linn.).

*Sterna nigra*, Linn. S. N. i. p. 227 (1766), F. S. p. 159; Meyer & Wolf, *Tasch. Deutsch. Vög.* ii. p. 461 (1810); Temm. *M. d'Orn.* p. 484 (1815).

*Sterna nœvia*, Linn. S. N. i. p. 228 (1766), ex Brisson (jr.).

*Sterna fissipes*, Linn. S. N. i. p. 228 (1766); Schlegel, *Mus. P.-B. Sternæ*, p. 29 (1863).

*Larus merulinus*, Scop. *Ann. i. Hist. Nat.* p. 81 (1769).

*Sterna surinamensis*, Gm. S. N. i. p. 604 (1788).

*Sterna plumbea*, Wilson, *Am. Orn.* vii. p. 83, pl. 60 (1813).

*Hydrochelidon nigra*, Boie, *Isis*, 1822, p. 563.

*Firabra nigra*, Steph. in Shaw's *Gen. Zool.* xiii. p. 167 (1824).

*Anous plumbea*, Stephens, in Shaw's *Gen. Zool.* xiii. pt. i. p. 142 (1826); (ex Wilson).

*Hydrochelidon fissipes*, G. R. Gray, *Gen. Birds*, iii. p. 660 (1849); *Blas. J. f. Orn.* 1866, p. 82; *Degl. & G. Orn. Eur.* ii. p. 465 (1867);

Sci. & Salvin, P. Z. S. 1871, p. 573; Coues, Proc. Phil. Acad. (1862), p. 554; G. R. Gray, Hand-list, iii. p. 121 (1871).

*Hydrochelidon plumbea*, Lawr. B. N. Am. p. 864 (1858); et al. auct. Am.

*Pelodes surinamensis*, Gray, Hand-list, iii. p. 122 (1871).

*Hydrochelidon lariformis*, Coues, B. N.W. Am. p. 704 (1874).

"*Sterna casia*, Linn." Gundlach, J. f. Orn. 1875, p. 393, (? error for *S. naevia*).

*Sterna nigra* of Linnæus (Syst. Nat. p. 227, 1766) is based upon his *Sterna* 159 of the 'Fauna Suecica' ed. 1761, in which he accurately describes the Black Tern, adding that "it is found on the small reedy islands about Upsala." This can only refer to the present species, as the White-winged Black Tern is one of the rarest of stragglers to any part of Sweden. Linnæus also refers to Albin's plate and description, Av. ii. p. 82, pls. 89 & 90, which are unmistakable. There is therefore no warranty whatever for identifying his *S. nigra* with the south-eastern species. I have gone carefully into the question; and any one who is willing to take the trouble of examining the matter for himself will, I have no doubt, share my opinion.

In almost all the adult American specimens which I have examined, about a dozen in number, the black of the underparts is of a deeper and more sooty brown tint than in any European examples out of upwards of a hundred from various localities, the black being as dark as in *H. leucoptera*, an intensity of hue which our form never possesses. In two or three examples, however, all females, the lightest-coloured American birds approach more closely to very dark specimens from Europe; and in the young and winter plumage the two forms are absolutely undistinguishable; so that any specific separation is out of the question. This species is found throughout Europe, Palestine, and N. Africa to the Nile; to S. Africa it appears to go only as a winter and somewhat rare visitant, as I only know of one example, obtained 4th Jan. 1871 at the Cameroons (the birds collected by Mr. Ayres and others being *H. leucoptera* in immature plumage); nor do I know of its occurrence in India. In America it ranges throughout and across the northern continent, visiting the West Indies and Spanish main on the one side, and going as far south as Peru and Chili on the Pacific coast in winter.

#### Genus STERNA, Linn. (part).

##### STERNA MAGNIROSTRIS, Licht.

*Sterna magnirostris*, Licht. Verzeichniss Doubl. p. 81 (1823) (type in Berlin Mus.; examined, *H. S.*); Max. v. Wied, Beit. iv. p. 861 (1833); Tschudi, F. Per. Aves, p. 305 (1846); Schlegel, Mus. P.-Bas, *Sternae*, p. 12 (1863).

"*Sterna speculifera*, Temm.," Lesson, T. d'Orn. p. 622 (1831); Pucheran, Rev. Zool. 1850, p. 5-14.

"*Sterna albifrons*, Cuv.," Lesson, Tr. d'Orn. p. 622 (1831) (sp. in Paris Mus. examined, *H. S.*).



*Phaëtusa magnirostris*, Wagler, Isis, 1832, p. 1224 (type of genus *Phaëtusa*); Scl. & Salvin, P. Z. S. 1871, p. 567; Gray, Hand-list, iii. p. 120 (1871).

*Sylochelidon magnirostris*, Blasius, J. f. Orn. 1866, p. 82.

This large-billed Tern with a slightly forked tail, but with amply webbed feet, is found far up the great rivers and along the coasts of tropical America from the equator down to about 35° S. Its eggs, which are deposited on the sandbanks, are similar in character to those of *S. anglica*; and taking all its characters into consideration, without relying only on the shape of the bill, it is difficult to allow its generic distinction without admitting a host of other and confusing genera.

#### STERNA ANGLICA, Mont.

*Sterna anglica*, Mont. Orn. Diet. Suppl. (1813) (type in Brit. Mus.); Schlegel, Mus. P.-Bas, *Sternæ*, p. 34 (1863); Degl. & Gerbe, Orn. Eur. ii. p. 450 (1867).

*Sterna aranea*, Wilson, Am. Orn. viii. p. 143, pl. 72. fig. 6 (1814).

*Sterna affinis*, Horsfield, Trans. Linn. Soc. 1820, xiii. p. 199 (type examined in E. I. Mus., H. S.).

*Thalasseus anglicus*, Boie, Isis, 1822, p. 563.

*Viralva anglica*, Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 174 (1826).

*Gelochelidon balthica*, Brehm, H. Vög. Deutsch. p. 772 (1831).

*Gelochelidon meridionalis*, Brehm, H. Vög. Deutsch. p. 774 (1831) type of genus *Gelochelidon*.

*Laropsis anglica*, Wagler, Isis, 1832, p. 1225 (type of *Laropsis*).

*Sterna macrotarsa*, Gould, P. Z. S. 1837, p. 26.

*Gelochelidon anglica*, Coues, Proc. Phil. Ac. 1862, p. 536; Jerdon, B. India, iii. p. 836 (1864); Blasius, J. f. Orn. 1866, p. 82; Scl. & Salvin, P. Z. S. 1871, p. 572; Coues, B. N.W. Am. p. 664 (1874).

*Gelochelidon macrotarsa*, Gould, B. Austr. Suppl. pl. 81 (1869), Handbk. B. Austr. ii. p. 403 (1865); Gray, Hand-list, iii. p. 119 (1871).

*Gelochelidon nilotica*, Gray, Hand-list, iii. p. 119 (1871).

*Gelochelidon aranea*, Gray, Hand-list, iii. p. 119 (1871).

In this case also, in spite of its stout bill, the short and somewhat rounded lateral feathers of the tail, and the long hind toe, I do not think we can consistently allow a generic distinction without admitting a number of indifferent genera. In its habits this bird appears to partake rather of the nature of the Sea-, than of the Marsh- or River-Terns, and although the shape of the tail is somewhat rounded as in *Hydrochelidon*, it must be remembered that *S. caspia* has a similar tail, and that both these species have the strong and fully webbed feet of the Sea-Terns. On the whole it would seem advisable to avoid undue multiplication of genera by retaining this species amongst the *Sternæ*.

It is now generally admitted that the American *S. aranea* is identical with the European bird; and I can see no ground for considering Mr. Gould's *Sterna macrotarsa* from Australia to be specifically distinct. The range of the species is therefore from

Western Europe to the China seas, throughout India, Ceylon, and the Malay region down to Australia, and along the east coast of America as far as Patagonia; on the Pacific side it has only been observed in Guatemala (Salvin). It does not appear to have been recorded from South Africa, which is somewhat remarkable.

Mr. G. R. Gray chose to identify this species with Hasselquist's *S. nilotica*; but there is nothing in his description to prove that this was the bird referred to; and in any case the name would not be available, as it antedates the 12th ed. of Linnæus's 'Systema Naturæ.'

STERNA SEENA, Sykes.

*Sterna seena*, Sykes, P. Z. S. 1832, ii. p. 171. no. 231.

*Sterna aurantia*, Gray & Hardw. Ill. Ind. Zool. i. pl. 69. fig. 2 (1832).

*Sterna brevirostris*, Gray & Hardw. Ill. Ind. Zool. i. pl. 69. fig. 1. juv. (1832).

*Sterna roseata*, Hodgson, Gray's Zool. Misc. p. 86 (1844).

*Seena aurantia*, Blyth, Cat. Birds Mus. As. S. B. p. 291. no. 1706 (1849) (type of subgenus *Seena*); Jerdon, B. India, iii. p. 838 (1864); Blasius, J. f. Orn. 1866, p. 73.

Although the stout curved bill of this species is somewhat peculiar, this seems to be hardly sufficient to warrant its elevation to the rank of a subgenus. The webs of the toes are of moderate extent and not much excised; the tail is *long* and *forked*, as in typical *Sterna*.

This Tern breeds on the sandbanks of the Indian rivers; and the eggs are in appearance intermediate between those of *S. anglica* and the large-billed River-Tern of South America, *S. magnirostris*. It appears to be confined to the Indian region.

The names *seena* and *aurantia* are contemporaneous; but I adopt the former, because it is properly described; *S. aurantia* is undescribed, and merely based upon a bad plate.

STERNA MELANOGAстра, Temm.

*Sterna melanogaster* (sic), Temm. Pl. Col. vol. v. pl. 434 (1838); Gould, B. Asia, pt. xix. pl. (1867).

*Sterna javanica*, Horsfield, in Zool. Res. (but not in Tr. Linn. Soc. 1820, xiii.); Jerdon, B. India, iii. p. 840 (1864); Irby, Ibis, 1861, p. 247.

*Sterna acuticauda*, Gray & Hardw. Ill. Ind. Zool. pl. 70. fig. 3 (1832).

*Sterna melanogastra*, Schlegel, Mus. P.-B. *Sternæ*, p. 21 (1863); Schl. & Poll. Rech. Madagasc. p. 147 (1868).

*Hydrochelidon melanogastra*, Bonap.

*Sternula melanogastra*, Blas. J. f. Orn. 1866, p. 74.

"*Sternula minuta*" et "*Sternula jerdoni*," Beavan, Ibis, 1868, p. 403 (clearly immature birds of this species).

*Pelodes javanica*, Gray, Hand-l. iii. p. 122 (1871).

Owing to its somewhat excised webs, and perhaps to its super-

ficial resemblance in the dark coloration of the lower parts to *H. hybrida*, this species has been placed by Bonaparte and others in the genus *Hydrochelidon*; but its long, straight bill, and long, pointed tail show that its position is rather with the true *Sterna*. It is an abundant species on most of the Indian rivers, in Ceylon, Burma, &c.; and in its manner of nesting on sandbanks, and in the character of its eggs, of which I have specimens before me, it differs from the Marsh-Terns.

As this species is constantly cited as "*Sterna javanica*, Horsfield," I may be excused for repeating that I have examined Horsfield's type specimen of "*Sterna javanica*" in the Indian Museum, and that it is undoubtedly *Hydrochelidon hybrida* (Pallas). As a straggler *S. melanogastra* has occurred during a tempest at the Island of Réunion.

#### STERNA ANTARCTICA, Wagler.

*Sterna antarctica*, Wagler, Isis, 1832, p. 1223 (ex J. R. Forster, MS.); J. R. Forster, Desc. Anim. p. 107 (ed. 1844); Buller, B. New Zealand, p. 283 (1873).

*Hydrochelidon albostrata*, G. R. Gray, Voy. Erebus & Terror, Birds, p. 19, pl. 21 (1844).

*Sternula antarctica*, Bonap. C. R. xlii. p. 773 (1856).

*Hydrochelidon albistriata*, Bonap. C. R. xlii. p. 773 (1856).

*Sterna cinerea*, Ellman, Zoologist, 1861, p. 7473.

*Hydrochelidon hybrida*, Finsch, J. f. O. 1867, p. 347.

*Pelodes albistriata*, Gray, Hand-list, iii. p. 122 (1871).

This species, of a nearly uniform smoke-grey colour, appears to be confined to New Zealand, and principally to the South Island, where it deposits its eggs on the bare ground, making no nest, and having in general the habits of a coast- or estuary-frequenting Tern. The foot is moderately stout, and the webs are but slightly scalloped; the upper mandible, which is slightly curved towards the tip, is quite different from that of *Hydrochelidon*, in which genus there seems to be no good reason for placing it. It is closely allied to the next species—a somewhat specialized form, found only, up to the present time, at Kerguelen Island.

#### STERNA VIRGATA, Cab.

*Sterna virgata*, Cabanis, J. f. Orn. 1875, p. 449.

"*Sterna vittata*, Gm.," Coues, in Bull. U.S. Nat. Mus. p. 17, 1875 (nec Gm. nec Von Pelzeln).

There are three specimens of this Tern in the British Museum, all from Kerguelen Island: two are in immature plumage; and one is a fine adult. The bill is rich blood-red, and the feet are red, whereas in *S. antarctica* those parts are yellow, or, at most, orange; the bill, also, in the Kerguelen bird is much straighter than in the New-Zealand form; and the tail is more deeply forked. It is, in fact, a more thoroughly Sea-Tern than its predecessor; in its nesting it is also peculiar, the *single* egg being deposited upon somewhat high and broken ground and on the slope of the hill-side (*Kidder*).

The egg is of the ordinary Tern-like character, with a trifle more olive-green in the ground-colour than is usual in eggs of *S. fluviatilis*, but which is not rare in a series of those of *S. macrura*. Dr. Kidder, Naturalist to the American Expedition to observe the Transit of Venus, describes the birds as very bold, swooping at the head of any one who approaches their breeding-grounds, and actually scaring the Skuas by their impetuous attacks. There can be no doubt that this was the species obtained by the Americans; but Dr. Coues is mistaken in identifying it with *S. vittata*, Gm., of which he can hardly have examined a genuine specimen, or he would never have confounded two such perfectly distinct species.

STERNA VITTATA, Gm.

*Sterna vittata*, Gm. S. Nat. i. p. 609 (1788) (founded on Latham's Wreathed Tern, from Christmas Island); Pelzeln, Novara-Reise, Vögel, p. 152 (1865) (full description).

Gmelin's description, founded on Latham, fairly suits this species, although I am inclined to doubt the correctness of the locality assigned, viz. Christmas Island, especially as there is no mention in Cook's Voyages of any Tern being found there, except the Sooty Tern, of which there is a full description. However, it has not been applied to any other bird; and in the Ornithology of the 'Voyage of the Novara,' Herr von Pelzeln adopted the name for the present species, obtained at St. Paul's Island, about 700 miles to the north of Kerguelen Island, giving a full description, both in Latin and German; so that the name may fairly be accepted. The British Museum possesses both adult (in breeding-plumage) and immature specimens obtained at St. Paul's Island in January 1853, and also a specimen from Kerguelen Island; there is another, taken on board H.M.S. 'Rattlesnake,' in 38° 22' S., 0° 25' W., on 27th February 1847; and I have a specimen, also captured on board ship, near the island of St. Helena, in April, for which I am indebted to my friend Mr. E. Hargitt. In general appearance this Tern much resembles *S. hirundinacea*, Lesson (*S. cassini*, Scl.); but it is decidedly smaller, and more generally washed with grey below; the bill, which is red, is rather weak, and tapers very suddenly from the angle to the tip. In the adult the tail is long, forked, and very white. It is interesting to find a species which apparently has its head quarters at St. Paul's Island, reaching down on the one hand to Kerguelen Island, where it meets with another species closely allied to *S. antarctica* of New Zealand, and then stretching away to the west of our meridian and approaching the limits of the South-American species, with which its affinities are undoubtedly strongest, and thus connecting South America with New Zealand by way of the islands of the South Atlantic Ocean.

STERNA HIRUNDINACEA, Less.

*Sterna hirundinacea*, Lesson, Tr. d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 539 (Santa Catharina, Brazil; type in Paris Mus. examined, *Il. S.*).

*Sterna hirundo*, Max. v. W. Beitr. iv. p. 865 (1833).

*Sterna antarctica*, Peale (nec Lesson, nec Wagler, nec Forst.), U.S. Expl. Exp. p. 280 (1848); Ph. & Landbeck, Cat. Av. Chilenas, p. 49.

*Sterna meridionalis*, Cassin (nec Brehm), U.S. Expl. Exp. p. 385 (1858); Schlegel, Mus. P.-B. *Sternæ*, p. 15 (1863).

*Sterna wilsoni*, Burm. Syst. Ueb. iii. p. 451.

*Sterna cassinii*, Sclater, P. Z. S. 1860, p. 391; Abbott, Ibis, 1861, p. 166; v. Pelzeln, Novara-Reise, Vög. p. 153 (1865); Sc. & Salv. P. Z. S. 1871, p. 570; Gray, Hand-l. iii. p. 118 (1871).

“*Sterna meridionalis*, Peale,” Blasius, J. f. Orn. 1866, p. 74 (nec Peale).

The range of this species, as defined by Messrs. Sclater and Salvin, is from Rio de Janeiro southwards to the Falkland Islands, and up the west coast of Chili as far north as Valdivia. Since then I have received specimens from Colchagua, in about 35° S. lat.; and it may naturally be looked for even further north. It is the largest and the lightest in colour of the medium-sized Sea-Terns; and the entire bill (which is long and powerful) is bright red in the adult.

It is with regret that I do not adopt Mr. Sclater's name *S. cassinii*; but the examination of the type of *S. hirundinacea* shows that it is undoubtedly this species.

#### STERNA ALBIGENA, Reich.

*Sterna albigena*, Licht. Nomenclator, 1854 (descr. nulla); Reich. Schwimmvög. Suppl. xi. pl. xxi. fig. 816.

*Hydrochelidon albigena*, Bonap. Compt. Rend. 1856, ii. p. 773.

“*Sterna senegalensis*, Sw.,” Heugl. Ibis, 1859, p. 351; König-Warth. Ibis, 1860, pp. 125, 432.

*Sterna albigena*, Heugl. Fann. Roth. Meeres, no. 307, p. 32 (descr.); Schlegel. Mus. P.-B. *Sternæ*, p. 20 (1863); Blasius, Journ. f. Ornith. 1866, p. 75; Finsch & Hartl. Vög. Ost-Afr. iv. p. 834, tab. x. fig. 2 (1870).

*Pelodes albigena*, Gray, Hand-list, iii. p. 122 (1871).

In order to show the connexion between the three preceding species, it was necessary to pass over the present, which is a local and smoke-coloured form of typical *Sterna*, having no real affinity with *Hydrochelidon*. The tail is long and pointed, the bill narrow and straight; the feet are amply webbed; and it is, in a word, a small, slender, Common Tern, of a general smoky hue, the rump and tail being as dark as the mantle. I cannot understand how Finsch and Hartlaub fail to identify Reichenbach's figure in the ‘Schwimmvögel’ with this species; for his illustration, though coarse, is decidedly far more recognizable than theirs in the ‘Vög. Ost-Afrika's.’ It is a very distinct form, which appears to have its head quarters in the Red Sea, south of the tropic of Cancer; and an interesting account of its breeding in the Dahalak archipelago is to be found in ‘The Ibis,’ 1861, p. 125. The eggs, two in number, are laid in July and August, on the flat coral reef, close to the beach, and resemble those of typical *Sterna*. Whilst writing this, Lord Walden has sent me

two fine specimens, obtained near Bombay, a considerable extension of its range as hitherto known to us. There is no example of this Tern in the British Museum: but the collections at Leyden, Frankfurt, Mayence, and Berlin are more fortunate in this respect.

STERNA FLUVIATILIS, Naum.

*Sterna hirundo* (in part), Linn. Syst. Nat. i. p. 227 (1766), and of most authors.

*Larus bicolor*, *Larus sterna* et *Larus columbinus*, Scop. Ann. i. Hist. Nat. p. 82, 1769 (nos. 110 & 112 im., 113 juv.).

*Sterna fluviatilis*, Naum. Isis, 1819, p. 1847-48; Gray, Hand-list, iii. p. 118 (1871); Sharpe & Dresser, B. Europe, pt. xi. (1872).

*Sterna senegalensis*, Sw. B.W. Af. ii. p. 250 (1837); Schl. Mus. P.-Bas, *Sternæ*, pp. 16 & 17 (1863) (sp. no. 2 examined by H.S.).

*Sterna wilsoni*, Bp. List, p. 61 (1838), et auct. American.; Gray, Hand-list, iii. p. 118 (1871).

*Sterna macrodactyla* et *macroptera*, Blasius, J. f. Orn. 1866, pp. 75, 76; Gray, Hand-list, iii. p. 118 (1871).

*Sterna dougalli*, Layard, B. S. Af. p. 369 (1867).

This well-known species is found throughout Temperate Europe, Asia, and America, except on the Pacific coast. In winter it visits the coast of Africa as far south as the Cape of Good Hope, and has occurred as far to the south-east as Ceylon, specimens having been sent to me by Capt. Vincent Legge, R.A. Northwards it goes as far as Pekin (*Swinhoe*); but in Tibet and part of Siberia it is replaced by a form which I consider to be distinct, and for which I propose the name of

STERNA TIBETANA, sp. nov.

*S. similis* *S. fluviatili* sed ubique saturatior; supra schistaceo-cinerea; subtus pectore clare vinaceo fucile distinguenda.  
(From a specimen in Lord Walden's collection.)

Four adult specimens from Tibet and several from Lake Baikal ascribed to *S. longipennis* differ from the latter in having the bill and feet coloured as in *S. fluviatilis*, from which in turn they differ in having the sides of the neck, shoulders, and flanks of a clear grey, which assumes a darker and more vinous tint on the breast and abdomen; the mantle and wings are also much darker. The bill and feet are smaller than in average *S. fluviatilis*, and of an orange-red, the former tipped with horn. It is possibly this species which Mr. Hume mentions as breeding near Yarkand. The examples referred to above are all in breeding-plumage; but I believe *S. fluviatilis* is a rare bird even in Lower India, and only found there during the winter months.

STERNA LONGIPENNIS, Nordm.

*Sterna longipennis*, Nordm. in Erman's Verz. v. Th. u. Ph. p. 17 (1835); Middendorff, Reise, Zool. p. 246, tab. 25. fig. 4 (1851); Schlegel, Mus. P.-B. *Sternæ*, p. 23 (1863) (as regards

Middendorff's specimens only, *H. S.*) ; Blas. J. f. Orn. 1866, p. 59 ; Gray, Hand-list, iii. p. 118 (1871).

In its slender shape and grey-tinted underparts this species seems to connect the preceding with *S. macrura* ; the *feet*, however, are *brown* ; and the *bill* is *black* in the breeding-season, and probably at other times. But authentic specimens in immature plumage are still desiderata, although I can refer to no other species a specimen obtained by Mr. Wallace in New Guinea. Lord Walden's collection contains a specimen from Yezo, the most northern of the Japanese islands ; and thence it reaches as far west as Lake Baikal, where, as before observed, *S. tibetana* is also found ; indeed many of the specimens sold by the Paris dealers as *S. longipennis* are really the latter species.

#### STERNA MACRURA, Naum.

*Sterna hirundo* (in part), Linn. Syst. Nat. p. 227 (1766), id. F. S. p. 55. no. 158 ; Gray, Hand-list, iii. p. 118 (1871) ; Sharpe & Dresser, B. Europe, xii. (1872).

*Sterna macrura*, Naum. Isis, 1819, p. 1847 ; Coues, P. Phil. Acad. 1862, p. 549 ; id. B. N.W. Am. p. 685 (1874).

*Sterna arctica*, Temm. Man. d'Orn. ii. p. 742 (1820).

*Sterna brachyppus*, Swainson, B. W. Afr. ii. p. 152 (1837) ; Gray, Hand-list, iii. p. 118 (1871).

*Sterna pikei*, Lawr. Ann. Lye. N. Y. vi. p. 3 (1853) ; id. Baird's B. N. Am. p. 853, pl. 95 (1858) ; Gray, Hand-list, iii. p. 118 (1871).

*Sterna paradisea*, Brünn., Schlegel, Mus. P.-B. *Sternæ*, p. 15 (1863) ; Blas. J. f. Orn. 1866, p. 74.

"*Sterna senegalensis*, Sw.," Schlegel, Mus. P.-B. *Sternæ*, p. 16 (1863) (no. 1 sp. examined, *H. S.*).

*Sterna portlandica*, Ridg. Am. Nat. viii. p. 433 (1874) ; Coues, B. N.W. Am. p. 691 (1874). (Other unimportant synonyms are intentionally omitted).

It is true that the mere description of *Sterna hirundo* given by Linnæus suits the Arctic Tern as regards the colour of the bill, which is properly described as "rubrum," and as "coccineum" in the 'Faun. Suec.,' whereas in the Common Tern the red bill is somewhat tipped with horn-colour. In the references to former authors and in the context, especially where he says "habitat ubique ad lacus et stagna," there is, on the other hand, a stronger probability of Linnæus's bird being the Common Tern, a species abundant in Sweden, and which is far more in the habit of frequenting inland waters than the Arctic Tern. Since the time when the two species were discriminated, first by Naumann, and in the following year by Temminck, the names of *S. macrura* and *S. arctica* have been generally adopted for the Arctic Tern, the latter being, perhaps, the more widely recognized, until the late Mr. G. R. Gray, and afterwards Messrs. Sharpe and Dresser, in one of the early Parts of the 'Birds of Europe,' on which they were then jointly engaged, considered it advisable to shift the time-sanctioned name of *S. hirundo*

from the Common to the Arctic Tern. There could be no objection to their discarding *S. hirundo* for the former and adopting *S. fluviatilis*; but these violent transfers must always be productive of confusion even when justifiable; and in this case it seems to me that the original description is so ambiguous that they would have done better to discard *S. hirundo* altogether, and to adopt the first name about which there could be no mistake—a step which, much as I dislike to differ from such high authorities upon nomenclature, I feel compelled to take.

This species is the *S. paradisea* of Brünnich (Orn. Bor. p. 42 (1764)—a pre-Linnæan name, which is not available. I notice it, however, because this name has frequently been employed for the Roseate Tern (*S. dougalli*), a bird with which Brünnich was unacquainted. From the plate and description I always imagined that *S. pikei* was an immature bird of this species, and am glad to have this opinion confirmed by Dr. Elliott Coues, who has lately reexamined the type.

With regard to *S. portlandica*, Mr. W. Brewer's investigations and the latest information from American sources leave little doubt that it is only an immature example of this species.

The Arctic Tern ranges along the coasts of northern Europe, Asia, and America; in winter it visits the African coast, descending as far as Walwich Bay; and I have an example obtained by Wucherer off Bahia, the only instance known of its occurrence so far south on the American side; it is possible, however, that the bird mentioned by Philippi and Landbeck, Cat. Av. Chilenas, 49 (1869), may be this species.

#### STERNA FORSTERI, Nutt.

*Sterna hirundo*, Sw. & Rich. F. Bor.-Am. p. 412 (1831), nec auct. (Saskatchewan River).

*Sterna forsteri*, Nuttall, Man. Orn. ii. p. 274, note (1834); Lawr. B. N. Am. p. 862 (1858); Coues, P. Phil. Acad. 1862, p. 544; Blas. J. f. Orn. 1866, p. 74; Sch. & Salv. P. Z. S. 1871, p. 569; Gray, Hand-list, iii. p. 118 (1871); Coues, B. N.W. Am. p. 676 (1874).

*Sterna havelli*, Aud. Orn. Biog. v. (1839) p. 122, pl. 409. fig. 1, and of Lawr. &c. (*vide* Coues); Gray, Hand-list, iii. p. 118 (1871).

A rather stouter and larger species than *S. fluviatilis*, this species may always be distinguished by its having the *outer* webs of the long tail-streamers *white*, whereas in the allied species they are dusky. In the 'Birds of the North West' (*l. s. c.*) Dr. Coues gives the differential diagnoses of *S. forsteri*, *fluviatilis*, and *macrura*; and to these I have nothing to add.

In summer this Tern breeds in the interior of British America and in Wisconsin; but at other seasons it is generally distributed throughout the United States, and goes down as far as Guatemala, on both the Pacific and Atlantic side, and even to the latitude of Pernambuco, Brazil, thus nearly impinging upon the northern limits of *S. trudeaui*, a species to which, in *winter* plumage only, it bears a superficial resemblance.



## STERNA DOUGALLI, Mont.

*Sterna dougalli*, Mont. Orn. Dict. Suppl. (1813); Vieillot, N. D. H. N. xxxii. p. 174 (1819), Gal. Ois. ii. p. 225; Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 153 (1825); Scl. & Salv. P. Z. S. 1871, p. 571; Coues, B. N. W. Am. p. 688 (1874).

*Sterna paradisæa*, Keys. & Blas. Wirb. Eur. p. 247. no. 484 (1840) (nec Brünn.); Lawr. B. N. Am. p. 863 (1858); Coues, Proc. Phil. Acad. 1862, p. 551; Gray, Hand-list, iii. p. 119 (1871); Walden, Ibis, 1874, p. 149 (Andaman Is.).

*Sterna gracilis*, Gould, P. Z. S. 1847, p. 222, B. Australia, vii. pl. 27 (1848), Handbook B. Austr. ii. p. 399 (1865); Gray, Hand-list, iii. p. 119 (1871).

"*Sterna douglasii*, Mont.," Schlegel, Mus. P.-B. *Sternae*, p. 24 (1863).

"*Sterna douglasi*, Mont.," Blasius, J. f. Orn. 1866, p. 80.

? *Larus polo-candor*, Sparrm. Mus. Carl. ii. fasc. 4, no. 83 (1788). ("Habitat ins. Polo-candor, mari Chinensi.") The plate represents a very young Tern, apparently of this species. Bonaparte says (in his "Notes sur les Larides," in the Rev. et M. de Zool, 1854) that he has proved it to be a young *Rissa*! but any thing more unlike a Kittiwake it would be difficult to imagine.

Apart from its light and elegant shape and its proportionally short wings, this species may always be recognized by the white inner margins of the primaries, extending quite round the tips of the feathers as far as the outer webs; the rump and tail-coverts are washed with gray. The coloration of the bill varies considerably with age and seasons; in some specimens it is black almost to the base, whilst in others the red or orange extends far in front of the angle. In American specimens the bill is, perhaps, a trifle stouter than in British examples, which are in this respect identical with birds from Africa and the Indian Islands. In these the red colour gradually encroaches upon the black, until, in two specimens from the Andaman Islands, in Lord Walden's collection, the black at the tip of the bill has almost disappeared, in which state it becomes the *S. gracilis* of Mr. Gould, whose typical specimen in the British Museum is in every other respect identical with *S. dougalli* from any part of the world; indeed, in his original description (in P. Z. S. 1847, p. 222) Mr. Gould calls it "a very elegant species, closely allied to *S. dougalli* of the British Islands," although he omits that remark in the 'Birds of Australia.' In view of these gradual changes in the amount of black in the bill, as exemplified by a series of upwards of fifty specimens from various localities, I must consider *S. gracilis* merely a form of *S. dougalli* with more red in its bill than is usual in northern specimens.

I do not find authentic records of the occurrence of this bird beyond 57° N. lat., south of which it ranges in scanty numbers along the British and European coasts, and goes up the Mediterranean at least as far as the Balearic Islands, whence Canon Tristram possesses an adult obtained in May. I have not seen any specimens from the west coast of Africa, all those so marked

from Damaraland being really *S. fluviatilis* in winter dress; but there are specimens in the British Museum from the Cape of Good Hope, and I have several examples from Natal. It is found off Rodriguez, and breeds at the Andaman Islands, where the eggs, sent with the parent birds by Capt. Wimberley, are far handsomer in markings than any American specimens; and quite recently I have received from Capt. Vincent Legge, R.A., a lovely rose-tinted specimen from Ceylon, shot in May, with but little black on the mandibles. Capt. Legge writes that a month later the red in the bills of the birds still on the coast had almost disappeared, showing what a changeable and untrustworthy character the colour of the bill is. From Ceylon this species is found throughout the Malayan islands down to Houtmann's Abrolhos, on the west coast of Australia.

In North America, where it is far more abundant than in Europe, it breeds from Massachusetts to Florida and at the Bermudas; also in Central America, and visits various West-Indian islands. In the British Museum is a skin registered as obtained at Taboga; and, the only place I know of that name being an island off Panama, this is a considerable extension of its range, if the locality can be trusted.

#### STERNA CANTIACA, Gm.

*Sterna cantiaca*, Gm. Syst. Nat. i. p. 606 (1788); Schl. Mus. P. B. *Sterna*, p. 5 (1863); Layard, B. S. Africa, p. 370 (1867); ScL. & Salvin, P. Z. S. 1871, p. 569; Coues, B. N.W. Am. p. 673 (1874).

*Sterna africana*, Gm. Syst. Nat. i. p. 605 (1788), jr.

*Sterna boysii*, Lath. Ind. Orn. ii. p. 804 (1790).

*Sterna canescens*, Meyer & Wolf, *Tasch. deutsch. Vög.* ii. p. 458 (1810).

*Thalasseus cantiacus*, Boie, *Isis*, 1822, p. 563; *Blas. J. f. Orn.* 1866, p. 81.

*Actocheilidon cantiacus*, Kaup, *Sk. Entw. Eur. Thier.* p. 31 (1829), type of *Actocheilidon*.

*Thalasseus canescens et candicans*, Brehm, *Vög. Deutsch.* pp. 776, 777 (1831).

*Sterna acyflavida*, Cabot, *Pr. Bost. Soc.* ii. p. 257 (1847); *Lawr. Birds B. N. Am.* p. 860 (1858).

*Thalasseus acyflavidus*, Coues, *Pr. Phil. Ac.* 1862, p. 540.

*Actocheilidon cantiaca*, Gray, *Hand-list*, iii. p. 119 (1871).

It is now generally admitted that the European and American birds are identical. The range of this species may therefore be broadly described as from Northern Europe to the Cape of Good Hope and the Bay of Bengal in winter, and along the Atlantic coast of North America to the West-Indian Islands, Honduras (probably its southern breeding-limit), and Brazil, at least as far as Bahia, whence I have a specimen.

#### STERNA ELEGANS, Gamb.

*Sterna elegans*, Gambel, *Pr. Phil. Ac.* iv. 1848, p. 129 (Matatlan); *Lawr. Birds N. A.* p. 860 (1858).

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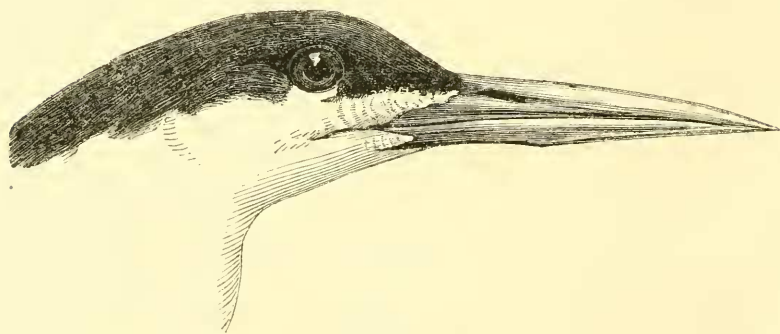
*Thalasseus elegans*, Gamb. Journ. Phil. Acad. ser. 2, vol. i. p. 228 (1849); Coues, Pr. Phil. Acad. 1862, p. 540; Ibis, 1864, p. 389 (San Salvador); Salvin, Ibis, 1866, p. 198 (Fonseca Bay).

*Sterna comata*, Phil. & Landb. Wieg. Arch. 1863, pt. 1, p. 126.

*Sterna galericulata* (part.), ScL. & Salv. P. Z. S. 1871, p. 569; Coues, Key, p. 319 (1872), B. N.W. Am. p. 671 (1874).

A recent examination of Lichtenstein's type of *S. galericulata* has shown it to be identical with the Cayenne Tern, *S. maxima*, Bodd.; so that Gambel's name must be restored. It occurs on the Pacific side of America, from the Gulf of California to the coasts of Peru and Chili; but I consider that the bird found on the Atlantic coast is distinct, although closely allied. Three specimens which I have examined in Mr. Salvin's collection, from the Pacific side, and two others in the British Museum, from Chili or Bolivia, all agree in having a longer foot and tarsus ( $\cdot 2$  inch) than the Atlantic bird; but the principal distinction is in the bill; the angle of the lower mandible being well in advance of the front portion of the nostril ( $\cdot 5$  inch diagonally) in the Pacific birds, whereas the angle is almost directly under the nostril in the Atlantic form; the colour of the bill also is red or orange in the former and yellow in the latter, even in tolerably fresh specimens, which still preserve the beautiful roseate tint of the underparts. It is perhaps as well to mention that these remarks are founded upon perfectly well-made skins, the tips of the mandibles being in their proper relative positions; otherwise it might be supposed that the under mandible had been unduly drawn back; the difference, however, on comparison, is very striking, as will be seen by the annexed woodcut.

Fig. 1.



Head of *Sterna eurygnatha*.

As the Atlantic bird has not hitherto been distinguished, I propose to call it

*STERNA EURYGNATHA*, sp. nov.

*S. similis* Sternæ eleganti, sed rostro flavo et mandibule angulo sub narium apertura antica posito distinguenda.

Similar to *S. elegans*, but a trifle smaller; bill less robust and yellow, whereas in *S. elegans* it is orange-red, the angle of the lower mandible almost immediately below the front of the nostril.

*Sterna elegans*, Leotaud, Ois. Trinidad, p. 542 (1866).

? "*Sterna cayanensis*, Gmel.," v. Pelzeln, Orn. Brasil. p. 323 (1871).

Range, from Santa Catharina, S. Brazil (*Rogers*), to the island of Trinidad, Leotaud's bird being most probably this species.

STERNA MEDIA, Horsfield.

*Sterna media*, Horsfield, Trans. Linn. Soc. 1820, xiii. p. 198 (type in E. I. Mus., examined, *H. S.*); Finsch & Hartl., Orn. Ost-Air. iv. p. 830 (1870); Irby, Orn. Str. Gibraltar, p. 209 (1875).

*Sterna affinis*, Rüpp. (nec Horsf.) Atlas, p. 23. tav. 14 (1826) (Red Sea); Temm. Man. d'Orn. iv. p. 454 (1840) (Sicily); Schlegel, Mus. P.-Bas, *Sternæ*, p. 6 (1863); Degl. & Gerb. Orn. Eur. ii. p. 454 (1867).

*Sterna bengalensis*, Lesson, Tr. d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 542; Jerdon, B. India, iii. p. 843 (1864).

*Thalasseus torresii*, Gould, P. Z. S. 1842, p. 140, B. Australia, vii. pl. 25 (1848).

*Thalasseus bengalensis*, Gould, Handbk. B. Australia, ii. p. 397 (1865).

*Thalasseus affinis*, Blas. J. f. Orn. 1866, p. 82.

*Actocheilidon affinis*, Gray, Hand-list, iii. p. 119 (1871).

This species may be considered an eastern representative of the preceding; but it is slightly smaller, the mandibular angle more advanced, and can always be distinguished by its *pearl-grey rump and tail*. It ranges from the Straits of Gibraltar, along the Mediterranean, down the Red Sea to Madagascar, and eastwards along the Indian coast and islands, throughout the Malay archipelago, the Aru Islands, down to Torres Straits and Port Essington.

STERNA MAXIMA, Bodd.

*Grande Hirondelle de Mer de Cayenne*, Buffon, Ois. viii. p. 346.

*Sterna maxima*, Boddart, Tabl. des P. Enl. p. 58. no. 988 (1783); Sel. & Salv. P. Z. S. 1871, p. 567 (Neotrop. Larid.).

*Sterna cayennensis*, Gmelin, Syst. Nat. 1788, i. p. 604; Leot. Ois. de Trinidad p. 535 (1866).

*Sterna cayana*, Latham, Ind. Orn. p. 804. no. 2 (1790); Steph. in Shaw's Gen. Zool. xiii. p. 155 (1825).

*Sterna galeuculata*, Licht. Verz. Doubl. p. 81 (1823) (type in Berlin Mus., examined, *H. S.*); Pelzeln, Orn. Bras. p. 324 (1871); Schlegel, Mus. P.-B. *Sternæ*, p. 7 (1863).

*Sterna erythrorhynchos*, Wied, Beitr. iv. p. 857 (1833); Tschudi, F. Per., Aves, p. 305 (1846).

*Sterna cristata*, Swains. B. W. Africa, ii. p. 247, pl. xxx. (1837) (type in Camb. Mus. examined, *H. S.*).

*Thalasseus cayanus*, Bp. List, 1838, p. 61; Gosse, B. Jamaica, p. 431 (1847).

*Sterna regia*, Gambel, Proc. Phil. Acad. iv. 1848, p. 228; Lawr. B. N. Am. p. 859 (1858); Coues, Key, p. 319 (1872), B. N.W. Am. p. 669 (1874).

*Thalasseus regius*, Gamb. J. Phil. Ac. i. 1849, p. 228; Coues, Proc. Phil. Ac. 1862, p. 539.

*Phaetusa regia*, Bp. Compt. Rend. p. 772 (1856).

*Thalasseus galericulatus*, Blas. J. f. Orn. 1866, p. 82.

*Thalasseus cayennensis*, Gray, Hand-list, iii. p. 120 (1871); Shelley, Ibis, 1872, p. 293.

*Sterna bergii*, Irby, Orn. Str. Gib. p. 209 (1875) (coll. Lilford; sp. examined, H. S.).

I fully agree with Messrs. Selater & Salvin that Buffon's plate on which *Sterna maxima* of Boddaert is founded, represents this species. Mr. Salvin and myself have also carefully compared Lichtenstein's type specimen of *S. galericulata* with our respective series of American specimens, and find them identical; I have also compared a good many specimens from the Gold Coast, all in winter plumage, and mostly obtained in the early spring. The specimen in Lord Lilford's collection, which was obtained by the late M. Favier in the Straits of Gibraltar, and was purchased from his successor by Col. Irby, undoubtedly belongs to this species.

Some North-American examples are a trifle more robust in the bill than either Brazilian or African specimens; but there is no constant difference, even in this particular.

On examining Lichtenstein's type of *S. galericulata*, the outer primaries proved to be partially in the sheath, and about two inches shorter than their natural length, explaining the original description of "the tail being 2 inches longer than the wings" which had previously been a great puzzle, there being no Tern of this size known in which the proportions were such. This species has a somewhat wide range, as it is found on the Pacific coast from California to Peru, whilst on the Atlantic sea-board it has once occurred as far north as Massachusetts; it breeds on the coast of Florida, and on some of the cays of the West-Indian Islands, and visits South Brazil. Its occurrence on the African coast has already been noticed; but at present there is no record of its breeding there.

#### STERNA CASPIA, Pall.

*Sterna caspia*, Pall. Nov. Comm. Petrop. xiv. p. 582 (1769-70); Pall. Zoog. Rosso-As. p. 332 (1811).

*Sterna tschegrava*, Lepechin, Nov. Comm. Petrop. xiv. p. 500 (1769-70).

*Sterna caspica*, Sparrm. Mus. Carl. ii. fasc. 3, no. 72 (1788); Kirk, Ibis, 1864, p. 337 (mouth of Zambesi, breeding).

*Sterna megarhynchos*, Meyer & W. Tsch. deutsch. Vög. ii. p. 457 (1810).

*Thalasseus caspius*, Boic, Isis, 1822, p. 563; Coues, Proc. Phil. Acad. 1862, p. 538, and *T. imperator* in text; Gray, Hand-list, iii. p. 120 (1871).

*Hydroprogne caspica*, Kaup, Sk. Entw. eur. Thier. p. 91 (1829).

*Sylochelidon caspia*, Brehm, Vög. Deutsch. p. 770 (1831), type of *Sylochelidon*; Blas. J. f. Orn. 1866, p. 82; Gould, Handbk. B. Austr. ii. p. 392 (1865).

*Sylochelidon balthica* et *S. schillingii*, Brehm, Vögel Deutsch. p. 769, 770 (1831).

*Helopus caspius*, Wagler, Isis, 1832, p. 1224 (type of *Helopus*).

*Thalassites melanotis*, Swain. B. W. Af. ii. p. 253 (1837) (type in Camb. Mus. examined, H. S.).

*Sylochelidon strenuus*, Gould, P. Z. S. 1846, p. 21; Gould, B. Austr. vii. pl. 22 (1848).

*Sylochelidon melanotis*, Bp. Compt. Rend. 1856, p. 772.

*Sterna melanotis*, Hartl. Orn. West-Afr. p. 254 (1857).

*Sterna major*, Ellman, Zool. 1861, p. 7472.

This large and well-known Tern is found from Northern Europe to New Zealand, and in America from Labrador, where it breeds, down to New Jersey. Mr. Bernard Ross also found it as far west as Great Slave Lake and the Mackenzie river.

It is now generally conceded that there is but one species.

With regard to the name, Dr. Elliott Coues very justly remarks that it is undesirable to adopt Lepechin's cacophonous name, in place of the well-known one given by Pallas, merely on the score of a priority of 82 pages.

#### STERNA BERNSTEINI, Schlegel.

*Sterna bernsteini*, Schlegel, Mus. P.-B. *Sterna*, p. 9 (1863) (♂, winter E. coast of Halmahera; type in Leyden Mus. examined, H. S.).

*Thalasseus bernsteini*, Blas. J. f. Orn. 1866, p. 81.

This large and very light-coloured species, the mantle being even paler than in *S. cantiaca* or *S. maxima*, is classed by Prof. Schlegel amongst the group which has the white frontlet band in the breeding-plumage. This may be the case; but I can discern no proof of it in the type and only specimen in the Leyden Museum, nor in two others from the Island of Rodriguez in the British Museum, nor in two others from Round Island and Ile de la Baleine, in the collection of Messrs. A. & E. Newton; for all these, the only ones I have ever seen, are equally in winter dress. The bill is yellow; but the black at the apex in the type is probably an individual peculiarity.

This Tern is closely allied to *S. maxima*; and, until we obtain a specimen in full plumage, its place seems to be next to it in order. The dimensions are:—Wing 12.5 to 13 inches; tarsus 1.1; foot, including middle claw, 1.15; bill 1.8.

#### STERNA BERGII, Licht.

*Sterna bergii*, Licht. Verzeich. p. 80 (1823), South Africa (type in Berlin M. examined, H. S.); Schlegel, Mus. P.-Bas, *Sterna*, p. 11 (1863); Finsch & Hartl. Vög. Ost-Afr. p. 828 (1870); Shelley, B. of Egypt, p. 298 (1872).

*Sterna cristata*, Steph. in Shaw's Gen. Zool. xiii. pt. i. p. 146 (1825) (nec Swainson); Swinhoe, Ibis, 1860, p. 68, 1863, p. 30.

*Sterna velox*, Rüpp. Atlas, p. 21, t. 13 (1826), Red Sea (type at Frankfort examined, *H. S.*); Thomson, Nat. Hist. Ireland, iii. p. 226 (1847), "between Dublin and Howth, end of Dec. 1846, in full breeding-plumage" (!); Swinhoe, Ibis, 1860, p. 429, 1861, p. 345, 1866, p. 134; Kirk, Ibis, 1864, p. 339 (breeding at mouth of Zambesi).

*Sterna pelecanoides*, King, Surv. Int. Austr. ii. p. 422 (1826).

*Sterna longirostris*, Lesson, Traité d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 635; Boie, Isis, 1844, p. 181.

*Pelecanopus pelecanoides*, Wagler, Isis, 1832, pp. 277 & 1225, type of *Pelecanopus*.

*Thalasseus pelecanoides*, Gould, B. Austr. vii. pl. 23 (1848); Gray, Gen. Birds, iii. p. 658; Swinhoe, P. Z. S. 1871, p. 422.

*Thalasseus poliocercus*, Gould, B. Austr. vii. pl. 24 (1848), Handbk. B. Austr. ii. p. 396 (1865).

*Sterna rectirostris*, Peale, Zool. U.S. Expl. Exped. p. 281 (1848).

*Sylochelidon polyocerca*, G. R. Gray, List of *Anseres*, Brit. Mus. p. 175.

*Sterna novæ-hollandiæ* (Mus. Paris.), Pucheran, Rev. Zool. 1850, p. 545 (type in Paris Mus. examined, *H. S.*)

*Pelecanopus velox*, *P. bergii*, et *P. poliocercus*, Bonap. Compt. Rend. xlii. p. 772 (1856).

*Sterna poliocerca*, Schlegel, M. P.-Bas, *Sternae*, p. 12 (1863); G. R. Gray, Ibis, 1862, p. 249.

*Thalasseus cristatus*, Swinhoe, P. Z. S. 1863, p. 329; Jerdon, B. of India, iii. p. 842 (1864); Gould, Handbk. B. Austr. ii. p. 394 (1865).

*Thalasseus bergii*, Blas. J. f. Orn. 1866, p. 81.

"*Phætusa astrolabæ*, Bp." in Paris Mus. from Tonga-tabu, Voy. of Quoy & Gaimard. Another specimen so marked = *S. frontalis*—*H. S.*

The distinguishing character of this large Sea-Tern is the white band of feathers across the base of the bill. In the adult plumage, and even in winter plumage, there is no other species of its size in which the mantle and tail are of so dark a grey; but it must be admitted that between extreme individuals from different localities there is a considerable difference in intensity of coloration. In a series, however, they blend so gradually as to make it impossible to draw a line; whilst with regard to the smaller race, which has received the name of *S. poliocerca*, there are similar imperceptible gradations in size. The types, of *S. bergii* from the Cape of Good Hope and of *S. velox* from the Red Sea, are identical in size and colour, and are not perceptibly lighter in colour than "*S. pelecanoides*;" but in Madagascar specimens, and also in some from Damara-land, the mantle is of a lighter shade. Locality does not assist in separating them; for it is clear that the light- and the dark-backed birds cross each other's line at Madagascar.

From the Cape of Good Hope and from the Red Sea (with the exception of Madagascar), throughout the Indian Seas, Ceylon, the Malay archipelago, the China seas, down to Australia and the Fiji

group, we find a uniformly dark mantle and tail; but at Ceylon we begin to meet with a race which differs in no respect but that of size, and this by imperceptible gradations. I must therefore follow Messrs. Finsch & Hartlaub, and unite these three varieties under one head. Before coming to this conclusion, I have examined about 70 specimens, and must especially acknowledge the great assistance I have received from the fine series of sexed and dated specimens sent to me from Ceylon by Capt. V. Legge, R.A. It is at Ceylon that the two races seem to unite, large and small examples occurring throughout the year in the same locality and flocks; and the difference thus becomes reduced to one of mere individual peculiarity. A series of measurements show that in length of wing (14 inches) and general dimensions, some Australian specimens are fully equal to the largest African ones; Polynesian examples are somewhat smaller, and there is less of a brown tinge in the colour of the back. This Tern appears to range as far as the Sandwich Islands; but I have not seen specimens.

The description given by Thompson, in the 'Birds of Ireland,' of the bird killed between Howth and Dublin undoubtedly applies to this species; but it is to be regretted that he did not see it *in the flesh*, as the fact of the specimen having the black head and white frontlet band (the mark of the *fullest breeding-plumage*) at the end of *December*, is somewhat remarkable. I learn from Mr. A. G. More, of the Dublin Museum, that this specimen is no longer in existence, having been burned with the rest of Mr. Walter's collection many years ago.

STERNA FRONTALIS, Gray.

? *Sterna striata*, Gm. Syst. Nat. i. p. 609 (1788): *Striated Tern*, Lath. Syn. iii. 2, p. 358, pl. 98—New Zealand (from a drawing by Sir J. Banks), jr.

*Sterna veloæ*, Gould (nec Rüpp.), P. Z. S. 1842, p. 140.

*Sterna frontalis*, Gray, Voy. Erebus & Terror, p. 19 (1844); Hand-list, iii. p. 118 (1871); Buller, B. New Zealand, p. 281 (1873).

*Sterna albifrons*, Peale, U.S. Expl. Exp. Birds, p. 279 (1848).

*Sterna melanorhyncha*, Gould, B. Australia, vii. pl. 26 (1848)—Van Diemen's Land; id. Handbk. B. Australia, ii. p. 398 (1865); v. Pelzeln, Orn. Novara-Reise, p. 154 (1865); Gray, Hand-list, iii. p. 118 (1871).

*Sterna atripes*, Ellman, Zoologist, 1861, p. 7473.

*Sterna longipennis*, Finsch (nec Naum.), J. f. Orn. 1867, p. 339.

"*Phætusa astrolabæ*, Bp.," specimen in the Paris Mus. from Tongatabu, Quoy & Gaimard's Voy., is a young bird; but another bird from same locality and similarly named=*S. bergii*!—H. S.

After comparing an immature specimen of this species with Latham's plate of the Striated Tern from New Zealand, I have no doubt in my own mind that this was the bird he figured; but it must be admitted that the drawing and description would almost equally suit the young of the Sandwich Tern; and *S. striata*, Gm., has in cou-



sequence been generally referred to that species. On the other hand there can be no possible doubt as to the identity of Gray's description, accompanied as it is by a plate of the *adult* bird. I think, therefore, that it is desirable to retain the name of *S. frontalis*, in preference to making a change which might be considered arbitrary, and would certainly be productive of temporary confusion.

In the white border to the inner webs of the primaries this Tern resembles *S. dongalli*, as remarked by Mr. Gould; it is, however, larger than that species, although not equal in size to *S. cantiaca*; and the white frontal band and black bill will always serve to distinguish it.

It appears to be a true Sea-Tern, breeding, according to Mr. Buller, in large colonies, and depositing its single egg on the bare rock, close to high-water mark. I have not seen specimens of the eggs; but, from the description, they seem to approach those of *S. cantiaca* in their general character.

Under the name of *S. melanorhyncha*, Mr. Gould records the occurrence on the coast of Tasmania of a Tern which appears to be identical with this species; but with that exception it does not seem to leave the shores of New Zealand.

#### STERNA TRUDEAUII, Audubon.

*Sterna trudeauii*, Aud. Orn. Biog. v. p. 125; id. B. Am. vii. p. 105 (1844); Lawr. B. N. Am. p. 861 (1860); Schl. Mus. P.-B. *Sterna*, p. 29 (1863); Gray, Hand-list, iii. p. 118 (1871); ScL. & Salv. P. Z. S. 1871, p. 570 (Neotrop. Lar.); Landb. An. Univ. Chile, 1872, p. 515; Coues, B. N.W. Am. p. 675 (1874).

*Phætusa trudeauii*, Blasius, J. f. Orn. 1866, p. 73.

*Sterna frobeeni*, Ph. & Landb. Wieg. Arch. 1863, p. 125; Cat. Av. Chil. p. 49 (fide ScL. & Salv.); Landbeck, An. Univ. Chile, 1872, p. 515; Gray, Hand-list, iii. p. 118 (1871).

This well-marked species is similar in size, shape of bill, and general plumage to *S. forsteri* in winter dress; but, unlike the majority of Terns, it *never has the crest black*, the crown being pure white, with only a transocular line on each side of the head; the mantle, wings, and tail are light grey; the rump white, and the feet yellow. It occurs along the coast of South Brazil and the Argentine provinces, and also on that of Chili; but of its breeding-places and eggs nothing is yet known; indeed, until lately, even skins were extremely rare in collections.

Messrs. Selater & Salvin and Dr. E. Coues are doubtful as to the type of this species having been really obtained on the coast of New Jersey—a doubt in which I share; but there is now no means of disproving Audubon's statement. With regard to *S. frobeeni*, which Messrs. Selater and Salvin identified with this species, Mr. L. Landbeck, in the 'Anales de la Universidad de Chile,' maintains their distinctness, and gives an elaborate comparative description of each, the result of which is, to my mind, to show more clearly than ever that his *S. frobeeni* is merely the present bird in immature plumage.

## STERNA MELANAUCHEN, Temm.

*Sterna melanauchen*, Temm. Pl. Col. v. pl. 427 (1838?); Gould, B. Austr. vii. pl. 28 (1848); Schlegel, Mus. P.-B. *Sterna*, p. 28 (1863); Finsch & Hartl. B. Central Polyn. p. 224 (1867).

*Onychoprion melanauchen*, Blyth, Cat. Birds Mus. As. Soc. p. 293 (1849); Jerdon, B. India, iii. p. 844; Swinhoe, Ibis, 1867, p. 230; id. P. Z. S. 1871, p. 422 (Amoy); Walden, Ibis, 1874, p. 149.

*Sterna melanauchen*, Bp. Compt. Rend. xli. ; Blasius, J. f. Orn. 1866, p. 74; Gray, Hand-list, iii. p. 121 (1871).

*Sterna marginata*, Blyth (*vide* Jerdon), juv.

*Gygis*, sp? et *Gygis decorata*, Hartlaub, Ibis, 1864, p. 232; Godeffroy's Cat. i. (1864) p. 5.

In this species the feet are strong and fully webbed; but I see no reason for separating it from true *Sterna*. It ranges from the Andaman and Nicobar Islands, throughout the Malay archipelago, and up the China coast to Amoy, down to the northern coasts of Australia, New Caledonia, and as far as the Fiji group. The eggs, specimens of which I owe to the kindness of Capt. Wimberley stationed at the Andaman Islands, are two in number, and are of a clay-white ground-colour, minutely spotted with brown of various shades; in some varieties the ground-colour is nearly pure white.

We now come to a group for which, making *S. minuta* his type, Boie proposed the genus *Sternula*—one which I regret to be unable to adopt, owing to the absence of any structural distinctions; for in some respects it is a very convenient subdivision, and the name explains itself.

There are four forms of small Tern with white forehead and black lores, the distinguishing features of which have frequently been overlooked, and various species thereby confounded. It is difficult to give the exact range of each; for the young are not always to be recognized with facility. But the characters of the adults may be briefly enumerated.

## STERNA MINUTA, Linn.

*Sterna minuta*, Linn. Syst. Nat. i. p. 228 (1766), et auct.

*Sternula minuta*, Boie, Isis, 1822, p. 564, type of *Sternula*.

Other synonyms are unimportant and need not be given here.

This Tern, which has *dark* shafts to the outer primaries, and the rump and tail *white*, ranges throughout temperate Europe to India, occurs in winter on coast of West Africa as far as the Cape of Good Hope, whence there is a specimen in the British Museum.

## STERNA ANTILLARUM, Less.

*Sterna antillarum*, Lesson, Desc. Mamm. et Ois. p. 256 (1848); Coes, Proc. Phil. Acad. 1862, p. 552; Sel. & Salv. P. Z. S. 1871, p. 571.

*Sterna argentea*, Nutt. Man. ii. p. 280 (1834); Lécotaud, Ois. Trinidad, p. 545; Wied, Beit. iv. p. 871 (1833); Burm. Syst. Uebers. iii. 542; Pelz. Orn. Bras. p. 325.

*Sterna frenata*, Gamb. Proc. Phil. Ac. 1848, p. 128.

*Sterna superciliaris*, Cab. J. f. Orn. v. 232; Coues, Key, p. 332 (1872).

*Sterna superciliaris*, var. *antillarum*, Coues, B. N.W. Am. p. 692 (1874).

Similar to the above, and has also *dark* shafts to primaries; but *the rump and tail-coverts are pearl-grey* like the mantle, and there is but little black at tip of bill.

Ranges throughout temperate America, on both coasts, and down to the Antilles, Trinidad, lat. 10° N.

#### STERNA SUPERCILIARIS, Vieill.

*Sterna superciliaris*, Vieillot, N. D. xxxii. p. 126 (1819), based on the *Ilati ceja blanca* of Azara; Scl. & Salv. P. Z. S. 1871, p. 571; Coues, B. N.W. Am. p. 692 (1874), in part.

Back, rump, and tail slightly darker than in the above; bill stouter and entirely yellow; the legs and feet also are of an olivaceous colour in my Amazon specimens, very different from the bright yellow of those parts in the two foregoing\*.

Is found on all the large South-American rivers from the Parana upwards, is plentiful on the Amazons and the Ucayali, and I found it abundant on the river Huallaga still further west.

#### STERNA SINENSIS, Gm.

*Sterna sinensis*, Gm. Syst. Nat. i. p. 608 (1788), based on the Chinese Tern of Latham.

*Sterna minuta*, Horsf. Trans. Linn. Soc. 1820, xiii. p. 198.

*Sternula sinensis*, Swinhoe, Ibis, 1863, p. 430; id. P. Z. S. 1863, p. 329.

*Sternula minuta*, Swinhoe, P. Z. S. 1871, p. 422 (Formosa and China).

*Sternula placens*, Gould, Ann. Nat. Hist. viii. p. 192 (1871); id. B. New Guinea, pt. iii. pl. 7 (May 1876).

Like *S. minuta*, but *shafts* of outer primaries *white*; as a rule also the bird is a trifle larger and stouter, and has a longer development of lateral tail-feathers than *S. minuta*.

Ranges from Ceylon, where it breeds, to the China seas, to Queensland, and down the Australian coast; how far I cannot say, as I have no specimens from there with trustworthy localities. From Ceylon Capt. Vincent Legge, R.A., has sent me a fine series, with the eggs, which are, as might naturally be expected, like those of *S. minuta*. He also sent me a nestling with the outer quill-feathers only partially developed; and on comparing it with a

\* Dr. Coues (B. of N.W. Am. p. 694) distinguishes *S. antillarum* from *S. minuta* by its grey rump and smaller bill with little black at the tip; but he goes on to argue that because it has sometimes no black at all on the bill, as is the case with *S. superciliaris*, which has, in its turn, a bill as stout or stouter than *S. minuta*, therefore *S. superciliaris* and *S. antillarum* are to be united. I fail to see how he can consistently do this without putting *all* the small Terns under one head; for the stout bill, especially so from the angle to the tip, and the abrupt prolongation of the outer tail-feathers in *S. superciliaris*, to say nothing of coloration, suffice to distinguish it from any other member of the group.

*S. minuta* of the same age, the difference in the colour of the shafts of the primaries was very apparent. There is often a grey tint on the rump and tail-coverts of winter-killed and immature specimens.

STERNA SUMATRANA, Raffl.

*Sterna sumatrana*, Raffles, Trans. Linn. Soc. xiii. (1822) p. 329.

*Sterna pusilla*, S. Müller (*vide* Gray)—Timor and Java.

Bill smaller and more slender than even in *S. antillarum*, but with much black between the angle and tip; tail-coverts and tail *grey as in the back*; shafts of primaries *black*.

Captain V. Legge has sent me a nearly adult specimen of this Tern from Ceylon; and the fact of two such different forms as this and the preceding being met with there is somewhat remarkable; a similar specimen is in my collection, from the coast of Fantee. Lord Walden has a specimen from Zoulla, Red Sea, obtained by Mr. W. Jesse; and that is all I know about this small dark form of the group, which is even darker than *S. antillarum* on the rump and tail, and has also a good deal more black on the bill. I have adopted Raffles's name for it, because the description and locality seem to fit it fairly; and, in default of a larger series, I do not wish to incur the odium of making species upon slight grounds.

STERNA NEREIS (Gould).

*Sternula nereis*, Gould, P. Z. S. 1842, p. 140, B. Australia, vii. pl. 29 (1848)—Bass's Straits and West Australia.

*Sterna parva*, Ellman, Zoologist, 1861, p. 7473.

*Sterna nereis*, Pelzeln, Verh. zool.-bot. Gesellsch. Wien, xxii. p. 318 (1867); Buller, B. New Zeal. p. 285 (1873).

*Sterna minuta*, Finsch, J. f. Orn. 1867, pp. 337, 347.

*Sterna alba*, Potts, Trans. N.Z. Inst. 1870, p. 106.

This species, which appears to be confined to Australia and New Zealand, may be distinguished from the other small Terns by its somewhat larger size, the paler grey of the mantle and especially of the primaries, and by its having *no black lores*, but only a dark *spot* in front of the eye. In the young the distinction is not so easy; but the primaries are always lighter than in *S. minuta* or *S. sinensis*.

STERNA EXILIS, Tsch.

*Sterna exilis*, Tschudi, F. Per., Aves, p. 306 (1846); Sclater, P. Z. S. 1867, pp. 336 & 344; Sel. & Salv. P. Z. S. 1871, p. 572.

*Sterna lorata*, Ph. & Landb. Wieg. Arch. 1863, pt. i. p. 124.

*Sternula loricata* (?), Gray, Hand-list, iii. p. 121 (1871).

The general smoke-grey of the under as well as the upper parts, and the large amount of black on the bill, will always serve to distinguish this species, of which I have only seen two specimens—one in Messrs. Salvin and Godman's collection, and one in the British Museum. Both these are from the coast of Peru and Chili; but of its breeding-places we know nothing at present.

## STERNA BALÆNARUM (Strickl.).

2/ *Sterna balænarum*, Strickl. Contr. Orn. 1852, p. 160; Gurney, Andersson's B. Damar. p. 367 (1872).

In this species there is no white frontlet, the black feathers coming down to the base of the bill, which is slender and black, except at the gape; the tail is grey like the mantle; and the tarsi and feet are the smallest of those of the group. The shafts of the primaries are *white*.

Walwich Bay to the Cape of Good Hope is its range, so far as is known.

## STERNA ALEUTICA, Baird.

*Sterna aleutica*, Baird, Tr. Chicago Acad. 1869, 321, pl. 31. fig. 1 (Alaska); Dall & Bann. ib. p. 307; Coues, Key to N.-Am. B. p. 322 (1872), B. of N.W. Am. p. 696 (1874); Gray, Hand-list, iii. p. 118 (1871).

After a careful examination of Pallas's description of *Sterna camtschatica*, I fully agree with Dr. E. Cones that Dr. O. Finsch has no sufficient reason for identifying it with this species (Abh. nat. Ver. Bremen, iii. p. 85). It is needless to repeat here the excellent descriptions given by the above American authors, the last of whom informs us that since the acquisition of the type three more specimens have been obtained. With its head-markings similar to those of the Sooty Tern (*Sterna fuliginosa*), from which, again, it differs in having a *white rump and tail*, it certainly presents a most interesting link in coloration between the Sooty and the typical Terns, groups which I cannot separate generically for want of well-defined structural differences. Indeed Dr. Coues seems inclined to give up *Haliplana* as a genus; and as the only distinction appears to be in the coloration, it is not easy to see how it can be retained according to the modern definition of a genus. The type was obtained at Kadiak, Alaska, in June, with the egg; so that it was in full breeding-plumage; but of the immature stages we have as yet no description.

## STERNA ANÆSTHETA (Scop.).

*Sterna anæthetus* (sic), Scop. Del. Faun. et Flor. Ins. i. p. 92. no. 72 (1786), ex Sonn. Voy. p. 125, pl. 84.

*Sterna panayensis*, Gm. S. N. ii. p. 607 (1788).

*Sterna oahuensis*, Bloxham, Voy. 'Blonde,' p. 251 (1826).

*Haliplana panayensis*, Wagler, Isis, 1832, p. 1224; Salvin, Ibis, 1864, p. 381, 1866, p. 199; Blas. J. f. Orn. 1866, p. 80.

"*Sterna antarctica*, Cuv.," Lesson, T. d'Orn. p. 621 (1831); Pucheran, Rev. Zool. 1850, p. 541. (Admitted to be *S. panayensis*.)

*Onychoprion panaya*, Gould, B. Austr. vii. pl. 33 (1848).

*Sterna infusata*, Heugl. Ibis, 1859, p. 351; id. F. Roth. Meeres, p. 32.

*Sterna panaya*, Heugl. F. Roth. Meeres, p. 31; Finsch & Hartl. Vög. Ost-Afr. p. 833 (1870).

*Onychoprion panayensis*, Scl. & Salv. P. Z. S. 1871, p. 572.

*Haliplana discolor*, Coes, Ibis, 1864, p. 392; Elliot, B. N. Am. ii. pl. 57 (1869).

? *Hydrochelidon somalensis*, Heugl. Orn. N.O.-Afr. p. 1458, p. ccvii (1873).

*Haliplana anosthætus*, Gray, Hand-list, iii. p. 122 (1871).

*Sterna melanoptera*, Swainson, B. W. Afr. ii. p. 249 (1837) (type in Camb. Mus. examined, *H. S.*).

This species, originally described from the Philippine Islands, is somewhat smaller than *S. fuliginosa*; the colour of the mantle is also less intensely dark. But the principal distinction is found in the feet, in which the webbing, instead of coming down to the claws between the outer and middle toe as in *S. fuliginosa*, only descends to the last joint, showing a more important structural difference between two such closely allied species than there is between *Onychoprion* and typical *Sterna*—an additional reason for discarding the former genus and its synonyms. The drawings show the shape of the feet in both species.

Fig. 2.

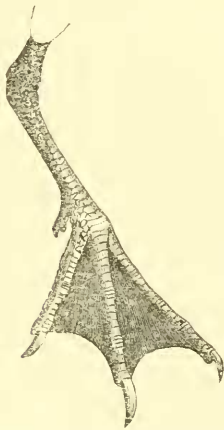


Fig. 2. Foot of *Sterna fuliginosa*.

Fig. 3.

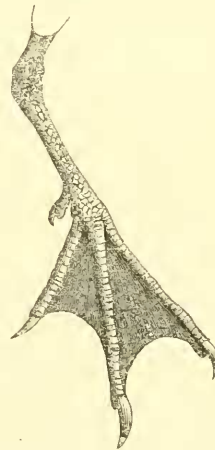


Fig. 3. Foot of *Sterna anæstha*.

In the young of the present species the *underparts* are *light-coloured* on emerging from the downy stage, whereas in *S. fuliginosa* they remain dark for some time.

Its range appears to be nearly identical with that of *S. fuliginosa*, and is noticed under that head.

#### STERNA LUNATA, Peale.

*Sterna lunata*, Peale, U.S. Expl. Exp., Birds, p. 277 (1848); Cassin, U.S. Expl. Exp., Birds, p. 382 (1858); Schlegel, Mus. P.-

B. *Sterna*, p. 27 (1863); Finsch & Hartl. F. Centralpolyn. p. 231, pl. xiii. fig. 3 (1867).

*Haliplana lunata*, Blas. J. f. Orn. 1866, p. 80; Gray, Hand-list, iii. p. 122 (1871).

This species is rather larger than the preceding; but the webs of the toes are similarly incised; the general colour is much greyer. Its range appears to be somewhat restricted, extending from the Moluccas to the Phenix and the Paumotu groups of the Polynesian Islands. There are no specimens in the British Museum; but I have examined those at Leyden, and find it a well marked species.

#### STERNA FULIGINOSA, Gm.

*Sterna fuliginosa*, Gm. Syst. Nat. i. p. 605 (1788); Aud. B. N. Am. vii. p. 90, pl. 432 (1840); Temm. & Schl. Fauna Japonica, p. 133, pl. 89 (1842); Lawr. B. N. Am. p. 861 (1858); Cassin, Orn. U.S. Expl. Exp. p. 386 (1858); Finsch & Hartl. Orn. Centralpolyn. p. 225 (1867), Vög. Ost-Afr. p. 831 (1870); Harting, Brit. Birds, p. 169 (1872).

*Onychoprion fuliginosus*, Wagler, Isis, 1832, p. 277 (type of genus *Onychoprion*, based on *S. serrata* of J. R. Forster's MS. Descr. An. p. 276, ed. Licht. 1844); Gould, B. Australia, vii. pl. 32 (1848); Selater, P. Z. S. 1856, p. 144 (I. Ascension); Sel. & Salv. P. Z. S. 1871, p. 573.

*Planetis guttatus*, Wagler, Isis, 1832, p. 1222 (type of genus *Planetis*, based on *S. guttata* of J. R. Forster's MS. Descr. An. p. 211, ed. Licht. 1844).

*Haliplana fuliginosa*, Wagl. Isis, 1832, p. 1224 (type of genus *Haliplana*); Bp. Compt. Rend. 1856, p. 772; Coues, Pr. Phil. Acad. 1862, p. 556; id. B. N. W. Am. p. 698 (1874); Gray, Hand-list, ii. p. 122 (1871).

*Sterna infuscata*, Licht. Verz. Doubl. p. 81 (1823) (type in Berlin Mus. examined, II. S.).

*Anous herminieri*, Lesson, Desc. Mamm. et Ois. p. 255 (1847).

*Sterna gouldii*, Reichenbach, Schwimmvög. Supp. xii. fig. 829.

*Sterna luctuosa*, Phil. & Landb. Wieg. Arch. p. 126 (1866).

*Thalassipora infuscata*, Gray, Hand-list, iii. p. 122 (1871).

"*Haliplana fuliginosa*, var. *crissalis*, Baird," Lawr. (Grayson) Proc. Bost. N.H. S. 1871, p. 285.

It will be observed that Wagler has based no less than three genera upon this single species—the first, *Onychoprion*, depending upon a supposed serration of the claw, evidently due to natural causes in the specimen he had before him, while the other two genera are based upon the slightest of structural differences. I confess I cannot see any good reason for erecting it into a genus, especially in view of the connecting-link formed by the preceding species.

Both this species and *S. anæstha* range throughout the whole of the warmer portions of the world, there being no perceptible difference between individuals from the most widely separated localities. It is said that at Ascension Island the Sooty Terns, or

“Wideawakes,” come every eight months to breed; if true, this is somewhat remarkable. The foot of this species is webbed to the extremity of the toes, as shown in the drawing (p. 665). The young are *dark* on the *underparts*.

#### Genus NÆNIA, Boie.

##### NÆNIA INCA (LESSON).

*Sterna inca*, Lesson, Voy. ‘Coquille,’ ii. p. 731. no. 145, atlas pl. 47 (1826).

*Anous inca*, Gray, Gen. Birds, iii. p. 661 (1849); Blas. J. f. Orn. 1866, p. 83.

*Nænia inca*, Boie, Isis, 1849, p. 189 (type of genus *Nænia*); Bp. Compt. Rend. xlii. p. 773 (1856); Sel. and Salv. P. Z. S. 1871, p. 567 (Neotrop. Laridæ); Gray, Hand-list, iii. p. 123 (1871).

*Larosterna inca*, Blyth, Cat. Mus. As. S. p. 293 (1849), type of *Larosterna*.

*Inca mystacalis*, Jard. Contrib. Orn. 1850, p. 32; Cassin, U.S. Expl. Exp. p. 391 (1858).

*Anous inca*, Gray, Gen. Birds, iii. p. 661 (1849)

*Inca mystacalis*, Jardine, Contr. Orn. 1850, p. 32; Cassin, U.S. Expl. Exped. p. 391 (1858)—Callao.

This well-marked form seems fairly entitled to generic distinction, the white drooping plumes beneath the eye, and the wattled gape being found in no other species: the hallux is also connected with the foot by a rudimentary web; the tail, however, is forked as in typical *Sternae*, removing it from any close relationship to *Anous* where some have placed it. It appears to be a rock-breeding species confined to the coasts of Peru and Chili.

#### Genus GYGIS, Wagler.

##### GYGIS CANDIDA (Gm.).

? *Sterna alba*, Sparr. Mus. Carls. ii. fasc. i. No. 11 (1786); Gm. Syst. Nat. i. 2, p. 607 (1788); J. R. Forster, Descr. An. p. 179, ed. Licht. (1844).

*Sterna candida*, Gm. Syst. Nat. i. 2, p. 607 (1788).

*Gygis candida*, Wagler, Isis, 1832, p. 1223, ex J. R. Forster, MS. (type of *Gygis*); Gray, Gen. Birds, iii. p. 660 (1849); Gould, B. Australia, vii. pl. 30 (1848).

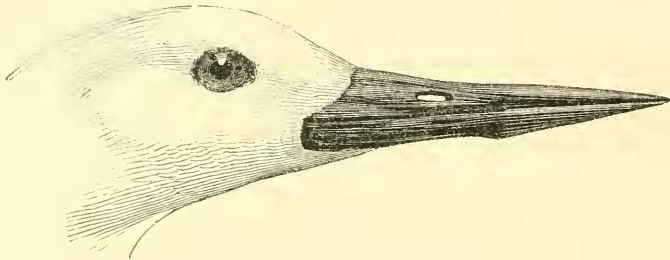
*Gygis alba* (Sparr.), Cassin, U.S. Expl. Exp. p. 389 (1858); Blasius, J. f. Orn. 1866, p. 73; Finsch & Hartl. Faun. Centralpolynes. p. 232 (1867); Gray, Hand-list, iii. p. 122 (1871).

This beautiful and peculiar species is characterized by long slender toes with very deeply incised webs, and a graduated tail, approaching in shape that of the next genus, *Anous*. The shape of the bill is also peculiar, being broad at the base, and slightly tapering upwards in front of the mandibular angle. To this form have belonged all the examples which I have examined, or the descriptions of which I have compared, from Madagascar and throughout Polynesia until we reach the



Marquesas. From that group, apparently the outpost of the species, I have examined three specimens, which differ so remarkably from

Fig. 4.

Head of *Gygis candida*.

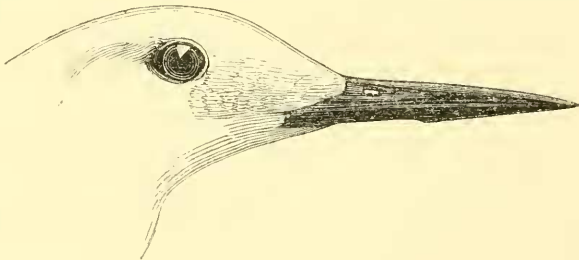
all others that I cannot consider them mere varieties, and propose for them the name of

*GYGIS MICRORHYNCHA*, sp. nov.

*Alba: similis G. candidæ, sed minor, rostro multo minore tenuiore, rectricum scapis albis nec nigris, distinguenda.*

In length of wing it is nearly an inch shorter than *G. candida*; the tail-feathers are more rounded, and the 3rd is the longest, whereas the 2nd is the longest in the larger species: the shafts of the first three primaries are merely clay-coloured, and the rest are pure white, whereas in *G. candida* they are all nearly black; and barely a trace of colour is to be observed on those of the tail. The bill is

Fig. 5.

Head of *Gygis microrhyncha*.

slender at the base, and quite different in shape from that of *G. candida* (as shown in the accompanying drawings).

Sparman's figure and description are both very bad; but Gmelin's, based upon Latham, distinctly points out the characteristics of the larger and black-shafted species; so I have adopted his name for it. On the other hand I cannot identify Sparman's bird

with the smaller species, of which, moreover, I have never seen a specimen except from the Marquesas; and I have therefore been compelled to give a name to it. The larger species is also found at the Marquesas.

The nesting of *Gygis* is peculiar, the single egg of clay-white mottled with brown being placed on the cavity of the branch of a tree, or in a fork of two branches, and on the points of the coral reefs—anywhere, in fact, where it will lie. In these habits *Gygis* shows another affinity with *Anous*, of which it seems to be a highly specialized offshoot.

“*Sterna nivea*” of F. D. Bennett (Whaling Voy. i. p. 370, 1840), from the Caroline Islands, might be either of these species; and I can find no description of “*Gygis napoleonis*,” Bp.

#### Genus ANOUS, Leach.

##### ANOUS STOLIDUS, Linn.

*Sterna stolidus*, Linn. Syst. Nat. i. p. 227 (1766); id. Amœn. Acad. iv. p. 240; Gmelin, S. N. i. 2, p. 605 (1788).

*Sterna fuscata*, Linn. Syst. Nat. i. p. 228 (1766), ex Brisson, vi. p. 220, t. 20. fig. 1; Gmel. S. N. p. 605 (1788), juv.

*Sterna pileata*, Scop. Del. Faun. et Flor. Insubr. i. p. 92. no. 73, ex Sonn. Voy. p. 125, pl. 85 (1786).

*Sterna senex*, Leach, in Tuckey's Exped. to the Congo, App. p. 408 (1818), obtained by Cranch.

*Anous niger*, Steph. in Shaw's Gen. Zool. xiii. i. p. 140, pl. 17 (1825)—type of *Anous*, Leach (adult).

*Anous fuscatus*, Steph. in Shaw's Gen. Zool. xiii. i. p. 140 (1825), juv.

*Anous spadicea*, Steph. in Shaw's Gen. Zool. xiii. i. p. 113 (1825), juv.

*Megalopterus stolidus*, Boie, Isis, 1826, p. 980.

*Sterna unicolor*, Nordm. in Ern. Verz. v. Thier. & Pfl. p. 17 (1835).

*Anous stolidus*, Gray, List Gen. Birds, p. 100 (1841); Blyth, Cat. B. A. S. Bengal, p. 293; Gould, B. Australia, vii. pl. 33 (1848); Cassin, U.S. Expl. Exp. p. 391 (1858); Finsch & Hartl. Faun. Centralpolyn. p. 234 (1867), Vög. Ost-Afrika's, p. 835 (1870); Sel. & Salv. P.Z.S. 1871, p. 566 (Neotrop. Laridæ); Coues, B. N.W. Am. p. 710 (1874).

*Anous roussseauxi*, Hartl. Beitr. Orn. Madagasc. p. 86 (1860).

This well-known species, a straggler to the British seas, ranges from the Gulf-coast of North America to the shores of Australia, throughout Polynesia, and occurs, in fact, in all tropical waters. There appears to be no constant difference between individuals from the most distant localities; and this similarity applies to its habits and breeding, its single egg being deposited on a nest of sea-weed placed on mangrove bushes, in the fork of a tree, or even on the bare rock.

In the British Museum there is a specimen from Dalrymple Rock, Chatham Island, one of the Galapagos group, which is of a uniform sooty brown. It is evidently an immature bird; and I am therefore

unwilling to give it specific rank; but it would be somewhat remarkable if subsequent research should show that the Galapagos Islands possess a fuliginous Noddy in addition to their *Larus fuliginosus* and other peculiar forms of bird-life.

ANOUS TENUIROSTRIS (Temm.). (Plate LXI. fig. 1.)

*Sterna tenuirostris*, Temm. Pl. Col. 202 (1838).

*Megalopterus tenuirostris* (Temm.), Boie, Isis, (1826), p. 980, type of genus *Megalopterus*.

*Anous melanops*, Gould, P. Z. S. xiii. p. 103 (1845); id. B. Australia, vii. pl. 34 (1848); Gray, Hand-list, iii. p. 123 (1871).

Under this name two species appear to have been confounded. Temminck figures a bird with a light head and neck and *pale grey lores*. But the bird which is far more abundant in collections under this title is the species which has the *lores deep black*, figured in Gray's 'Genera of Birds' under the name of *A. melanogenys*. Temminck's type came from Senegal; and the only specimens like it which I have been able to examine as yet are two in the British Museum from the island of Rodriguez (from one of which the figure is taken), and one in Lord Walden's collection from Mauritius. In the absence of any detailed description it is impossible to say to which species the "*S. tenuirostris*" of various writers, from the Red Sea, belongs. Beyond the above localities it occurs at Houtmann's Abrolhos, on the west coast of Australia, whence Mr. Gould described and figured it under the name of *Anous melanops*. Mr. Gould's bird, however, appears to me to be identical with Temminck's, in spite of the stress laid upon the supposed absence of a black spot by the eye in Temminck's figure, which spot is conspicuously present in the plate of *A. melanops*. It seems to be a somewhat rare species, at least in collections. Besides the different coloration of the feathers between the base of the bill and the eye, it appears to be a somewhat smaller bird than *A. melanogenys*, the wing being nearly an inch shorter; the bill also, in the specimen I have seen, is relatively shorter between the angle and the tip; but a much larger series must be examined before attaching much importance to that peculiarity.

ANOUS MELANOGENYS, Gray. (Plate LXI. fig. 2.)

*Anous melanogenys*, G. R. Gray, Gen. Birds, iii. p. 661, pl. 182 (1849); id. Hand-list, iii. p. 123 (1871).

*Anous tenuirostris*, Sel. & Salv. Neotrop. Lar., P. Z. S. 1871, p. 566.

Respecting this black-faced species (see Plate LXI. fig. 2, taken from a specimen in my own collection) I can only repeat that it is generally found usurping the name of *Anous tenuirostris* in collections. It is apparently a widely distributed form, occurring on the coasts of Central America, Africa, Australia, and throughout Polynesia.

ANOUS LEUCOCAPILLUS, Gould. (Plate LXI. fig. 3.)

*Anous leucocapillus*, Gould, P. Z. S. pt. xiii. (1845) p. 103; id. B. Aust. vii. pl. 35 (1848); Cassin, U.S. Expl. Exp. p. 393 (1858);